

DAM SAFETY SUPPORT ANNEX

Coordinating Department

Emergency Management

Cooperating Departments

Fire-EMS Department

Police Department

Public Works Department

Sheriff's Department

Emergency Communications Center

Department of Technology

Western Virginia Water Authority

Virginia Department of Conservation and Recreation (DCR)

Virginia Department of Emergency Management

I. Introduction

A. Purpose

To facilitate the evacuation of downstream residents in the event of an imminent or impending dam failure.

B. Scope

The Virginia Department of Conservation and Recreation provides detailed guidance to dam owners in developing an emergency action plan in the event of dam failure. The Director/Coordinator of Emergency Management is responsible for making the decision to order evacuation in the case of impending or imminent dam failure.

C. Situation

There are two Class I dams upstream from the City of Roanoke that present the possibility of flooding in the event of dam failure. Both of these impoundments are owned and operated by the Western Virginia Water Authority.

The Carvins Cove Dam is located on Tinker Creek, a tributary of the Roanoke River, in Botetourt and Roanoke counties.

The Clifford D. Craig Memorial Dam at the Spring Hollow Reservoir is located in the Glenvar area of Roanoke County, adjacent to the Roanoke River. The dam at Spring Hollow is of a type that has never experienced a structural failure, and is unaffected by rainfall or peak mean flow of any rivers or streams. However, if the dam would fail, inundation would significantly raise the Roanoke River levels in the City.

II. Concept of Operations

A. General

Dam owners are responsible for the proper design, construction, operation, maintenance, and safety of their dams, and; for reporting abnormal conditions at the dam to the Police Department, the City Manager, and the Coordinator of Emergency Management, and; to recommend evacuation of the public below the dam if it appears necessary. Owners of

dams that exceed 25 feet in height and impound more than 50 acre-feet (100 acre-feet for agricultural purposes) of water must develop and maintain an Emergency Action Plan. This plan shall include a method of notifying and warning persons downstream and of notifying local authorities in the event of impending failure of the dam. An Emergency Action Plan is one of three items required prior to issuance of an Operation and Maintenance Certificate by the Virginia Department of Conservation and Recreation. In addition to the Virginia Department of Conservation and Recreation, a copy of the plan must be provided to the Director of Emergency Management and to the Virginia Department of Emergency Management.

Standards have been established for Dam Classifications and Emergency Stages. More information on these standards can be found on Tab 1. The public will be routinely notified of Stage I conditions at an affected dam. During a Stage II condition, there is a possibility that evacuations may be ordered, and emergency services personnel are responsible for notifying the affected areas. If conditions deteriorate to Stage III and overtopping and/or structural failure is imminent, it is the responsibility of the City to warn the public, order evacuation from the affected area, and declare a local emergency.

B. Organization

The Director/Coordinator of Emergency Management is responsible for making the decision to order evacuation in the event of an imminent or impending dam failure. The Director/Coordinator of Emergency Management, the Emergency Communications Center, Police, Fire-EMS, and Sheriff's Department personnel are responsible for notification of affected properties and individuals by any means possible, including activation of the Emergency Alert System, the Reverse 911 system, or door-to-door notification.

C. Responsibilities

1. Dam Owners (Western Virginia Water Authority)

- Develop a Comprehensive Emergency Action Plan for warning and evacuating the Public in the event of dam failure;
- Obtain an Operation and Maintenance Certificate from the Virginia Department of Conservation and Recreation; and
- Operate and maintain the dam to assure the continued integrity of the structure.

2. City Departments

- Develop compatible procedures to warn and evacuate the public in the event of dam failure (See Warning Support Annex);
- Notify public of possible dam failure;
- Order immediate evacuation of residents in expected inundation areas;
- Sound warning through use of sirens, horns, and vehicles with loudspeakers, Emergency Alert System, telephone calls, and door-to-door notification to evacuate individuals immediately out of the area or to high ground in area for later rescue;
- Provide assistance to disaster victims;
- Clean up debris and restore essential services;

- All agencies tasked in this plan implement recovery procedures;
- Review emergency procedures used and revise, if necessary, to insure lessons learned are applied in future disasters; and
- Determine what mitigation measures, if any, should be initiated (zoning, design of dams, etc.).

III. Documentation

A. Authorities

In addition to those listed in the Basic Plan:

1. **Code of Virginia**, Title 10.1, Chapter 6, Article 2, Section 10.1-604, et. seq., Dam Safety Act.
2. Virginia Soil and Water Conservation Board, Regulation VR 625-01-00, Impounding Structure Regulation, February 1, 1989.

B. References

1. Carvins Cove Dam (Inventory No. 02301) Emergency Action Plan; Western Virginia Water Authority; 2005
2. Clifford D. Craig Memorial Dam-Spring Hollow Reservoir (Inventory No. 16104) Emergency Action Plan; Roanoke County; 2002
3. Windsor Lake Dam (Inventory No. 77001) Emergency Action Plan; Windsor Lake Corporation; 2005

Tab 1 to Dam Safety Support Annex

DAM CLASSIFICATIONS AND EMERGENCY STAGES

Dam Classifications

Dams are classified, as the degree of hazard potential they impose should the structure fail completely. This hazard classification has no correlation to the structural integrity or probability of failure.

Dams which exceed 25 feet in height **and** impound more than 50 acre feet in volume, or 100 acre feet if for agricultural purposes, are required to obtain an Operation and Maintenance Certificate which includes the development of an emergency action plan administered by the Department of Conservation and Recreation.

Class I (High Hazard) - Probable loss of life; excessive economic loss.

Class II (Moderate Hazard) - Possible loss of life; appreciable economic loss

Class III (Low Hazard) - No loss of life expected; minimal economic loss.

Emergency Stages

When abnormal conditions impact on a dam, such as flooding or minor damage to the dam, the dam owner should initiate specific actions that will result in increased readiness to respond to a potential dam failure. The following stages identify actions and response times which may be appropriate.

Stage I - Slowly developing conditions; five days or more may be available for response. Owner should increase frequency of observations and take appropriate readiness actions.

Stage II - Rapidly developing conditions; overtopping is possible. One to five days may be available for response. Increase readiness measures. Notify local Coordinator of conditions and keep him informed.

Stage III - Failure has occurred, is imminent, or already in flood condition; overtopping is probable. Only minutes may be available for response. Evacuation recommended.

Tab 2 to Dam Safety Support Annex

LOCAL DIRECTORY OF DAMS REGULATED BY VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION AND REQUIRING EMERGENCY ACTION PLANS

Class I

Carvins Cove Dam

Western Virginia Water Authority
601 South Jefferson Street
Roanoke, VA 24011
24-Hour (540)853-7500

Clifford D. Craig Memorial Dam (Spring Hollow Reservoir)

Western Virginia Water Authority
601 South Jefferson Street
Roanoke, VA 24011
24-Hour (540)853-7500

Class II

Windsor Lake Dam

Windsor Lake Corporation
c/o Alain Nicolas
4546 Royal Oak Drive
Roanoke, VA 24018
(540) 588-0870

Class III

None